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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* ROBERT A. CORDERY, CLAUDE ZELLER,  
and BERTRAND HAAS

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Appeal 2009-002585  
Application 10/720,292  
Technology Center 2600

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Decided: March 15, 2010

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Before JOHN C. MARTIN, MAHSHID D. SAADAT,  
and ROBERT E. NAPPI, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 2, 4-12, and 14-19. Claims 3 and 13 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

## STATEMENT OF THE CASE

Appellants' invention relates to a method for determining whether a printed-image-under-examination (PIUE) is a copy of an original printed image by determining an extent to which a watermark is present in the printed image. (Spec. ¶¶ [0004]-[0006]). Claim 1, which is illustrative of the invention, reads as follows:

1. A method of determining whether a printed-image-under examination (PIUE) is a copy of an original printed image, the method comprising:

(a) scanning the PIUE to generate scanned image data, the scanned image data comprising pixel data, the pixel data comprising gray scale values and representing the PIUE as a set of scanning pixels;

(b) forming a plurality of data blocks from the scanned image data, each data block consisting of pixel data which corresponds to a respective region of the PIUE;

(c) transforming the pixel data in at least some of the data blocks to obtain transform domain data by applying at least one of a Fourier transform, a fast Fourier transform, a discrete cosine transform (DCT) and a wavelet transform to the pixel data in the at least some of the data blocks to obtain the transform domain data;

(d) applying a watermark detecting operation to the transform domain data for respective ones of the data blocks to generate recovered watermark data; and

(e) determining a correlation between the recovered watermark data for at least some of the data blocks and average brightness levels for said data blocks.

The Examiner relies on the following prior art in rejecting the claims:

Rhoads	US 2003/0215112 A1	Nov. 20, 2003
Sharma	US 2004/0105569 A1	Jun. 3, 2004 (filed Jul. 12, 2001)
Murakami	US 7,065,237 B2	Jun. 20, 2006 (filed Dec. 9, 2002)

Claims 1 and 10 stand rejected under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.<sup>1</sup>

Claims 1, 2, 4, 5, 9-12, 14, 15, and 19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Sharma.

Claims 6, 7, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharma and Murakami.

Claims 8 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharma and Rhoads.<sup>2</sup>

Rather than repeat the arguments here, we make reference to the Brief and the Answer for the respective positions of Appellants and the Examiner.

#### ISSUES

1. Under the first paragraph of 35 U.S.C. § 112, with respect to appealed claims 1 and 10, does the Specification, as originally filed, support the claimed requirement of “determining a correlation between the recovered watermark data for at least some of the data blocks and *average brightness levels for said data blocks*?” (Emphasis added.)

2. Under 35 U.S.C § 102(e), with respect to appealed claims 1, 2, 4, 5, 9-12, 14, 15, and 19, does Sharma anticipate the claims by teaching all of the claim limitations?

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<sup>1</sup> The Examiner has inadvertently omitted the dependent claims from the rejection, whereas these claims actually inherit the alleged deficiency of their base claims.

<sup>2</sup> The Final Rejections of the claims are repeated on pages 3-9 of the Examiner’s Answer.

3. Under 35 U.S.C § 103(a), with respect to appealed claims 6-8 and 16-18, does the combination of Sharma with Murakami or Rhoads render the claimed subject matter unpatentable?

### FINDINGS OF FACT

1. Referring to Figure 6, Appellants describe determining the brightness of the data block as follows:

At step 610 (which may precede or follow steps 606, 608) the brightness of the data block in question may be determined. This may be done, for example, by calculating an average gray scale value of the pixels in the data block.

(Spec. ¶ [0057].)

2. Sharma relates to encoding and decoding auxiliary signals that perform a wavelet decomposition of the media signal and embed a watermark orientation signal into the wavelet decomposition. (¶ [0006].)

3. As shown in Figure 6, Sharma describes a watermark detection process where blocks of the target image are remapped to a log polar coordinate system 608 using 2D transformation 604 and Fourier transformation 606. (¶¶ [0090]-[0092].)

4. Sharma performs a correlation 610 between the transformed data block and the transformed orientation pattern 612 and produces the rotation and scale parameters 614. (¶¶ [0093]-[0094].)

5. Sharma applies the scale and rotation parameters to the target block 616 which is used in a subsequent correlation process between the orientation pattern 618 and the rotated data block 616 for accurate reading of the watermark. (¶¶ [0095]-[0096].)

6. Sharma further discloses a method for estimating translation parameters of the orientation signal. The parameters are used along with rotation, scale, and differential scale to form a complete 6D vector for extracting luminance sample data in approximately the same orientation as the original watermarked image. (¶¶ [0186]-[0188].)

7. Sharma describes extracting translation parameters with reference to Figure 17, where the produced 4D orientation vector with the highest detection values 1080 is applied to the luminance data to generate rectified block data 1086. (¶¶ [0189]-[0190].)

## PRINCIPLES OF LAW

### *Written Description*

“The purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not; the applicant for a patent is therefore required to ‘recount his invention in such detail that his future claims can be determined to be encompassed within his original creation.’” *Amgen Inc. v. Hoechst Marion Roussel Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003) (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991)). While there is no requirement that the claimed invention be described in the identical wording that was used in the Specification, there must be sufficient disclosure to show one of skill in this art that the inventor “invented what is claimed.” *See Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 997 (Fed. Cir. 2000).

The written description must be of sufficient detail to show possession of the full scope of the invention. *Pandrol USA LP v. Airboss Railway Products Inc.*, 424 F.3d 1161, 1165 (Fed. Cir. 2005).

*Anticipation*

A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference. *See In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

*Obviousness*

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *See In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991), and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

ANALYSIS

*35 U.S.C. § 112 Rejection*

With respect to the written description issue, the Examiner asserts that the term “average brightness levels for said data blocks,” as recited in claims 1 and 10, has no support in the originally filed Specification (Ans. 3-4). The Examiner acknowledges that Appellants’ disclosure describes “the brightness of the data block” and “calculating average gray scale value of the pixels in the data block,” but reasons that no definition is disclosed for the claim term (Ans. 6).

Appellants contend that the average brightness level is the same as the brightness level because they have the same numeric value (Br. 7-8). Appellants argue that by including the term “average” in the claims, the brightness level for each data block is clarified as an average of pixel gray scale values (Br. 8). Appellants conclude that their disclosure of the detection of watermark data, independent of the brightness level when a

correlation is performed, reasonably conveys Appellants' possession of the claimed invention to the ordinary skill in the art (*id.*).

Upon a review of the arguments and the evidence of record, we find Appellants' arguments to be unpersuasive. The original disclosure remains uncontested as merely describing "brightness of the data block" and "calculating an average gray scale value of the pixels in the data block" (FF 1). Such description merely indicates that the brightness of the data block is the same as the average gray scale value of the pixels in the data block. However, it does not explain what "*average* brightness of the data block" is or how such average is obtained. Appellants' argument that "the average brightness level is the same as the brightness level because it has the same numeric value" (Br. 7-8) is unpersuasive because, as explained above, the Specification does not explain what the average brightness of a block is or how it is obtained. Therefore, the term "average brightness of the data blocks" has no support in the Specification. While we recognize that the exact wording is not necessary to explicitly describe the claim limitation at question, there must be sufficient disclosure that shows one of ordinary skill in the art that Appellants invented and disclosed the claimed step of determining a correlation with the *average* brightness levels for the data blocks.

Thus, contrary to Appellants' assertion (Br. 7-8), the average brightness level for each data block is not the same as an average gray scale value of the pixels in the data block. As such, upon reading Appellants' disclosure a person of ordinary skill in the art would not be led to the conclusion that the Specification, as originally filed, supports the disputed claim term. Accordingly, we sustain the rejection of claims 1 and 10 under



35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

*35 U.S.C. § 102 Rejection*

By pointing to paragraphs [0186] to [0188] in Sharma, Appellants assert that Sharma estimates the rotation, scale, and differential scale of the orientation vector which depends on the variation of the pixel gray scale values (Br. 9). Appellants argue that this estimate is not dependent on the average pixel gray scale value and provides no information related to estimating translation (*id.*). Appellants further argue that Sharma applies a watermark detecting operation to generate recovered watermark data instead of determining a correlation between the recovered watermark and average brightness levels for said data blocks (Br. 13).

The Examiner responds that Sharma anticipates Appellants' claims and finds that the reference discloses a function block of "Correlation" in Figure 6 and the limitation of "performs a correlation between the transformed image block . . ." in paragraphs [0093] as well as paragraphs [0188] – [0206] (Ans. 13). The Examiner specifically points to paragraph [0188] for disclosing orientation vectors used in extraction of luminance sample data (or brightness) in correlation process (*id.*).

We disagree with the Examiner's finding that Sharma's correlation between the transformed image block and the transformed orientation pattern meets the claimed "determining a correlation between the recovered watermark data for at least some of the data blocks and *average brightness levels for said data blocks*" in step (e) of independent claims 1 and 10.

Initially, we find that the identified correlation is based on the transformed image and transformed orientation patterns used to produce the rotation and scale parameters (FF 2-4). In other words, the correlation is not between the recovered watermark data and any luminance levels for the data blocks and instead, is one of the steps performed in the process of recovering the watermark (FF 5). Therefore, the Examiner has not adequately explained how Sharma's correlation between the transformed image block and the transformed orientation pattern used for reading the watermark would result in determining a correlation between the recovered watermark and any brightness level for the data blocks.

Second, Sharma's disclosure of brightness data is limited to determining the translation parameters used for forming a 6D vector for extracting watermark's luminance sample data in the same orientation as the original watermark image (FF 6). As such, the luminance data, in combination with the orientation vector, generates further transformed data blocks for extracting translation parameters (FF 7). Therefore, in characterizing Sharma's extracting luminance sample data as the claimed "average brightness levels for said data blocks," the Examiner equates the sample data that is used for reading the watermark with the brightness level of the data blocks to be correlated with the recovered watermark. In addition, the Examiner has not identified, and we do not find, any teaching in Sharma where the data block brightness based on any average pixel value of the data block is used in correlation with the recovered watermark.

Accordingly, we will not sustain the rejection of independent claims 1 and 10, nor of claims 2, 4, 5, 9, 11, 12, 14, 15, and 19 dependent thereon.

*35 U.S.C. § 103 Rejection*

We will not sustain the rejection of claims 6-8 and 16-18 for the reasons discussed with respect to claims 1 and 10 because none of the other applied references cure the above-noted deficiencies of Sharma.

**CONCLUSION**

On the record before us, we find that the Specification, as originally filed, does not support the claimed requirement of “determining a correlation between the recovered watermark data for at least some of the data blocks and average brightness levels for said data blocks. However, we find that Sharma does not anticipate claims 1, 2, 4, 5, 9-12, 14, 15, and 19 because the references does not teach all of the claimed limitations. We further find that the combination of Sharma with Murakami or Rhoads does not render the claimed invention unpatentable.

**ORDER**

The decision of the Examiner rejecting claims 1 and 10 under the first paragraph of 35 U.S.C. § 112 is affirmed, but reversed with respect to the rejection of claims 1, 2, 4, 5, 9-12, 14, 15, and 19 under 35 U.S.C § 102(e) and of claims 6-8 and 16-18 under 35 U.S.C § 103(a).

**AFFIRMED-IN-PART**

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Appeal 2009-002585  
Application 10/720,292

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